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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,435	08/23/2001	Tae Kyung Won	5336/DISPLAY/AKT/BG	2581

32588 7590 09/29/2003

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER

JACKSON, MONIQUE R

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/938,435

Applicant(s)

WON ET AL.

Examiner

Monique R Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 25-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 25-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. It is noted that the instant application has been reassigned to Examiner Monique R. Jackson; contact information is provided below. Upon reconsideration, the finality of the prior office action dated 4/24/03 has been withdrawn. Any inconvenience to the Applicant is regretted.
2. The after-final amendment filed 8/25/03 has been entered. The after-final amendment faxed 9/9/03 has been entered. Claims 1-13 and 25-38 are pending in the application.
3. The Examiner notes that the Applicant submitted the after-final amendment faxed 9/9/03 to place the application in condition for allowance based on a conversation with the Examiner, however after upon reconsideration, the Examiner has reopened prosecution in light of the following rejections.
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

5. Claims 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3-6 recite the limitation "the organosilicate film" in lines 1. There is insufficient antecedent basis for this limitation in the claim.
6. Claims 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "thin organosilicate film" in claims 8-9 is a relative term which renders the claim indefinite. The term "thin" is not defined by the claim, the specification does not

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provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Is "thin" on the order of tens of microns, a few microns, thousands of angstroms, hundreds of angstroms?

Claim Rejections - 35 USC § 103

7. Claims 1-13 and 25-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al in view of Beer et al. Goto et al teach deposition of TEOS oxide using pulsed RF plasma wherein a TEOS precursor is deposited on a silicon dioxide substrate using a PECVD process to produce an organosilicate film on the substrate such that the thickness uniformity of the film is less than 10% (Col. 5, lines 15-30; Tables 1-2; Fig. 6b.) Goto et al teach that the process of making the coated substrate includes inputting He, Oxygen and TEOS into a PECVD chamber and applying RF energy to generate a plasma utilizing standard TEOS conditions wherein He is supplied at 100 sccm, Oxygen at 350 sccm, and TEOS at 185 sccm, at a temperature of 400°C (Col. 5; Examples.)

8. Though Goto et al teach that uniformity of the film thickness is critical, Goto et al do not teach controlling the surface temperature of the substrate at two points, namely a perimeter area and an inner area inside the perimeter, as instantly claimed, in order to control thickness uniformity. However, as previously discussed in prior office actions and noted on the record by the Applicant, substrate temperature variations in a CVD process affect the film thickness and uniformity of an organosilicate film that is formed from such process wherein a more uniform temperature on the entire substrate surface yields a more uniform thickness of the coated layer. Hence, one having ordinary skill in the art at the time of the invention would have been motivated to maintain a uniform temperature distribution across the entire surface of the

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substrate to be coated in the invention taught by Goto et al. Further, as previously discussed, Beer et al disclose a method which comprises controlling the temperature of the periphery of a substrate and an inside portion thereof in order to produce a uniform temperature across the substrate in a PECVD processing chamber, wherein the Examiner notes that uniform temperature promotes uniform thickness as previously discussed. Therefore, one having ordinary skill in the art at the time of the invention would have been motivated to control the temperature difference at a periphery portion and an inner portion of the substrate as taught by Beer et al in order to obtain a uniform temperature on the entire substrate surface ensuring a uniform film thickness in the invention taught by Goto et al, utilizing routine experimentation to determine the optimum operating conditions including input feeds, operating temperatures, deposition time/rate and energy density to provide the desired film and thickness properties for a particular end use. Further, though Goto et al do not teach the length and width of the substrate to be coated, it would have been obvious to one having ordinary skill in the art to determine the desired substrate size based on a particular end use.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wong et al (USPN 5,156,820) teaches a reaction chamber with controlled radiant energy heating and distributed reactant flow in order to maintain a uniform temperature on the substrate surface in order to ensure uniform film growth on the substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R Jackson whose telephone number is 703-308-0428. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on 703-308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


MONIQUE R. JACKSON
PRIMARY EXAMINER

Technology Center 1700
September 23, 2003